PERANCANGAN PENGUKURAN AKURASI JARAK MENGGUNAKAN PHANTOM SILICONE PADA KONTROL KUALITAS ULTRASONOGRAFIDENGAN TEKNIK KOMPUTASI

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Abstract

This study aims to conduct an ultrasound quality test by computing the distance calculation on an ultrasound image and analyzing the distance measurements of phantom silicon objects by changing the variation in frequency and depth. The variation of the average depth of real distance in phantom is object 1 by 1 cm from the surface, object 2 by 2 cm from the surface, object 3 by 3 cm from the surface. After computational calculations, the actual distance from the object is obtained. At a frequency of 3.5 MHz, the depth value of object 1 visualization is obtained as a result of a distance of computational average of 1.0039 cm with a deviation value of 0.0814 so that the error value of the real distance is 0.39%. The depth value of object 2 visualization is obtained from the results of a distance of computational average of 1.4897 cm with a deviation value of 0.0099 so that the value of the error distance real is 25.51%. Depth value visualization of Object 3 which has a computing distance average of 3.3336 cm with a deviation value of 0.1191 so that the error value of the rill distance is 11.12%. At a fixed frequency of 4.5 MHz, the depth value of object 1 visualization is obtained as a result of the average computational distance of 0.9931 cm with a deviation value of 0.05 so that the value of the real distance error is 0.69%. The value of depth visualization of object 2 is obtained by the results of a distance of computational average of 1.6584 cm with a deviation value of 0.0573 so that the value of the error distance rill is 17.08%. The depth value of object 3 visualization which has computational average distance of 3.4943 cm with a deviation value of 0.0741 so that the error value of real distance is 16.47%. Of all the results of the test component, the calculation of distance on an ultrasound image can be done using computer software.

***Keywords*:** *USG, Silicone Phantom, Quality Control, Distance Accuration*